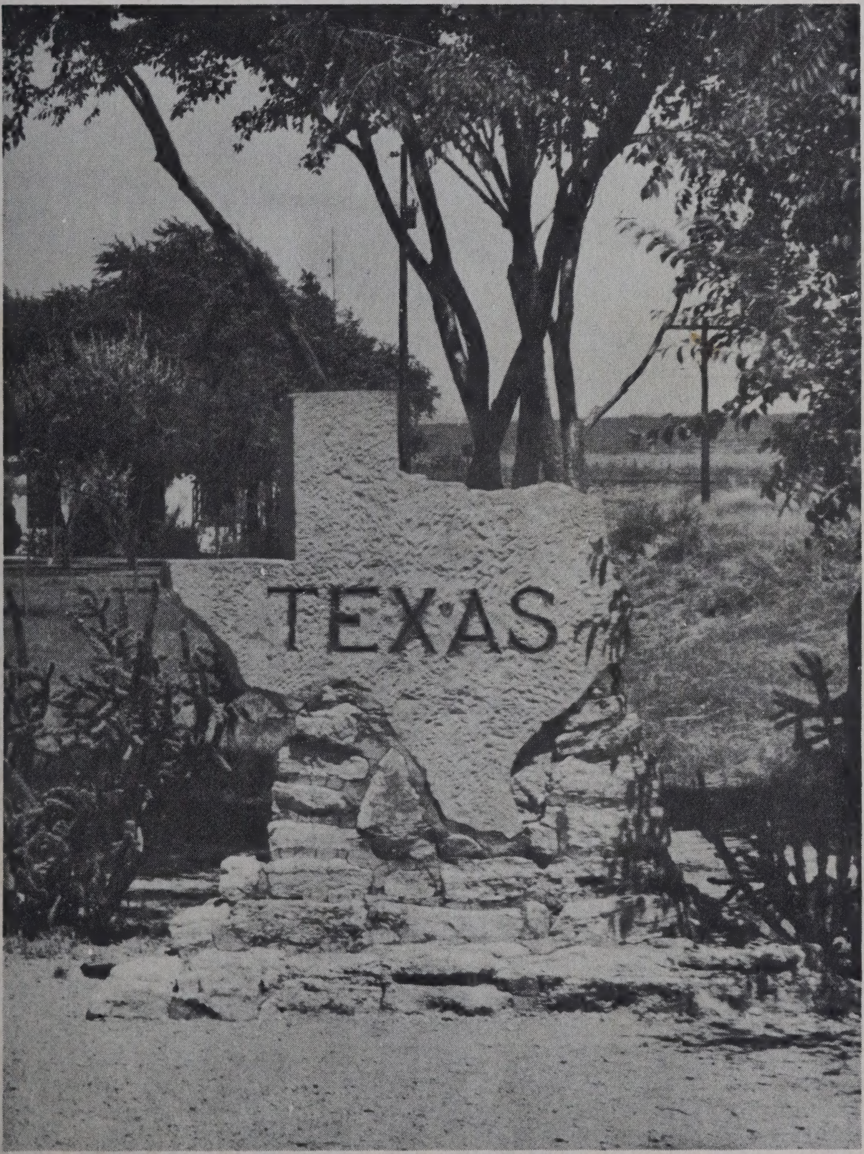
J. L. Harris

TEXAS HIGHWAY DEPARTMENT

Construction & Maintenance

BULLETIN No. 1

July, 1950



Foreword

This bulletin is published for the purpose of presenting practical information applicable to current highway problems. These conclusions and data are not necessarily endorsed by the Highway Department nor are they to be construed as instructions. Employees are invited and urged to submit suggestions and relate experiences which would benefit those engaged in the construction and maintenance of highways.

Photographic services are available and other assistance may be obtained if desired in preparing material for submission. All material and comments should be directed to the Chief Engineer, Construction & Maintenance, Austin, Texas.

Published Jointly by

Maintenance Division	**D- 3**
Equipment & Procurement Division	**D- 4**
Construction Division	**D- 6**
Traffic Services Division	**D-16**

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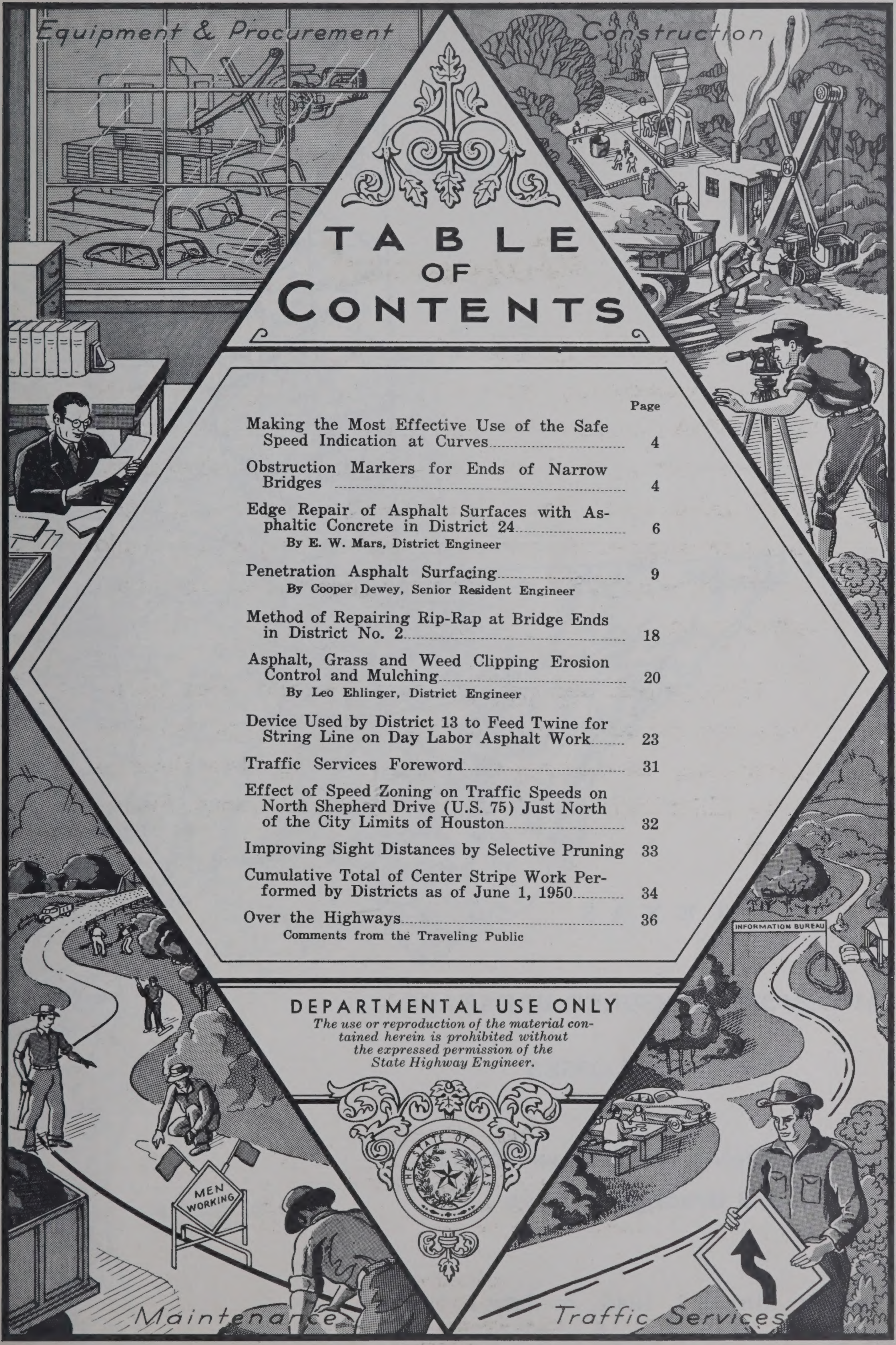
TEXAS HIGHWAY DEPARTMENT
AUSTIN,TEXAS



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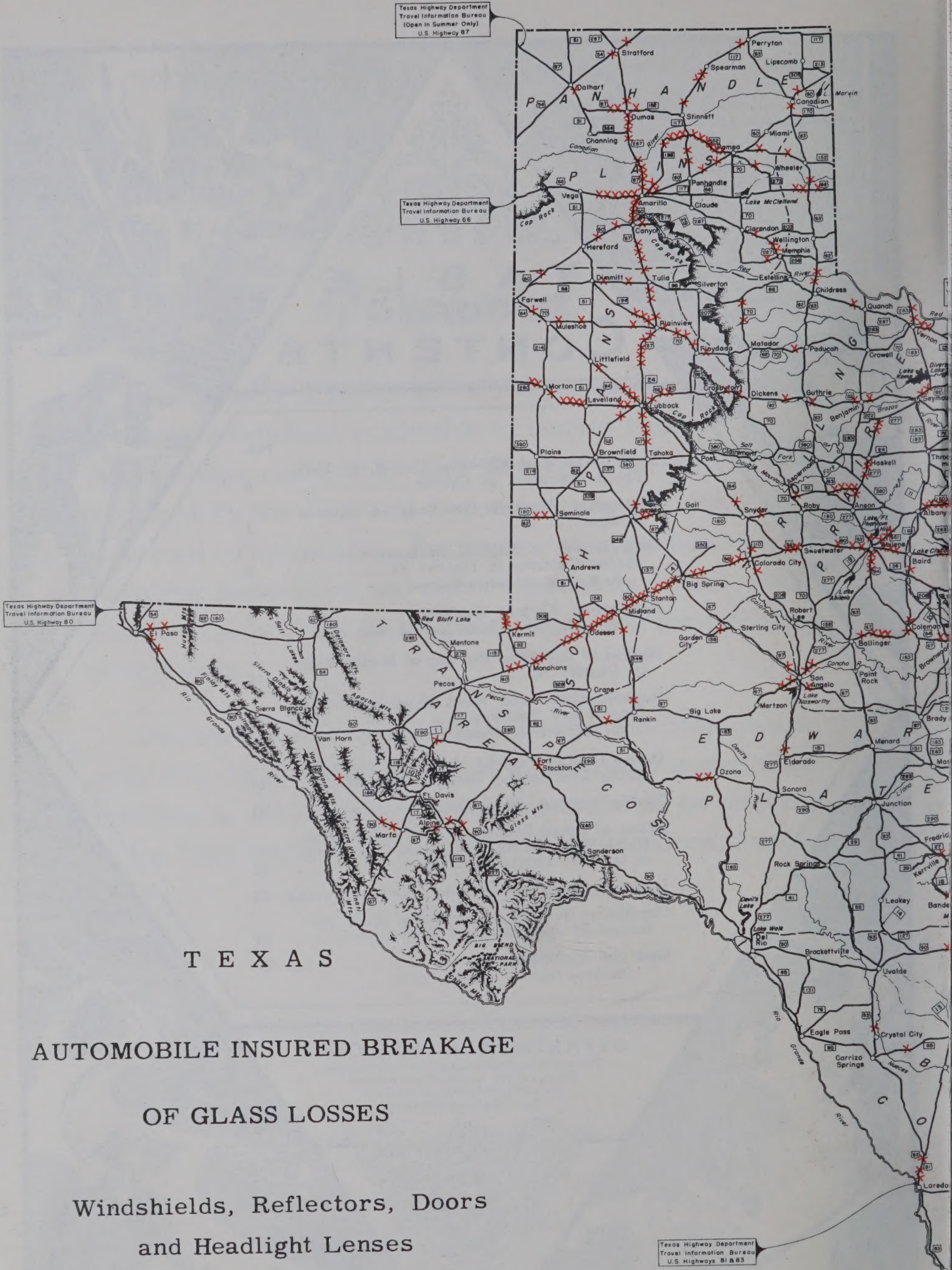


TEXAS

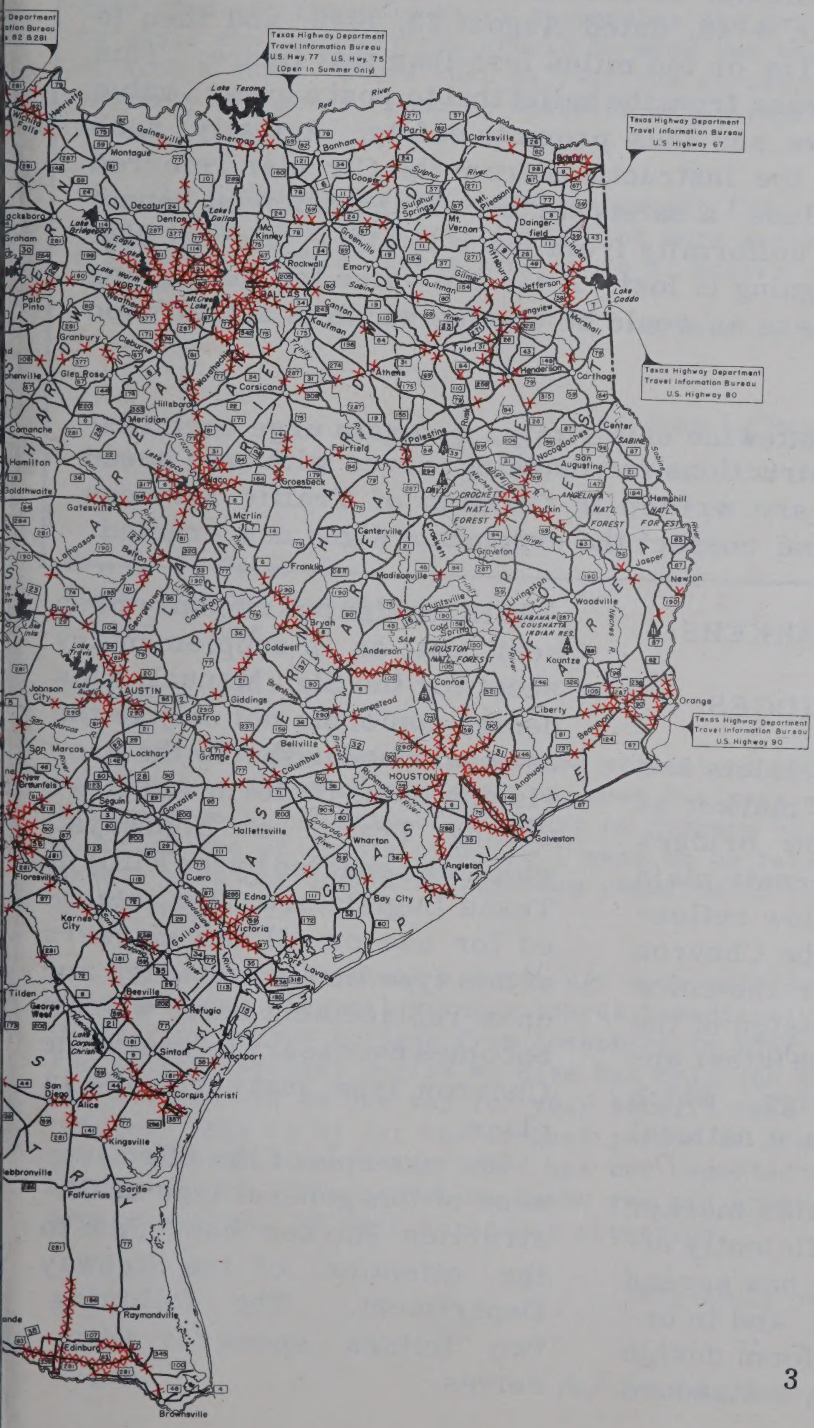
AUTOMOBILE INSURED BREAKAGE

OF GLASS LOSSES

Windshields, Reflectors, Doors and Headlight Lenses

Period: March 1, 1949, to July 1, 1949

Total Number of Losses: 1162


Department
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s 82 & 281
Texas Highway Department
Travel Information Bureau
U.S. Hwy. 77 U.S. Hwy. 75
(Open in Summer Only)
Texas Highway Department
Travel Information Bureau
U.S Highway 67
Texas Highway Department
Travel Information Bureau
U.S. Highway 80
Texas Highway Department
Travel Information Bureau
U.S. Highway 90
Lake Texoma
Red River
Wichita Falls
Gainesville
Sherman
Paris
Clarksville
Texarkana
FT. WORTH
DALLAS
Tyler
Longview
Marshall
Waco
Palestine
Nacogdoches
Lufkin
AUSTIN
Bryan
HOUSTON
Galveston
Beaumont
Orange
Victoria
Corpus Christi
Kingsville
Raymondville
Edinburg
Brownsville

MAKING THE MOST EFFECTIVE USE OF THE SAFE SPEED INDICATION AT CURVES

You may have noticed in traveling about the State that there is some variation in the posting practice for the safe speed indications at curves. Several Districts have stated that their policy on determining the "safe" speed was to measure the "safe" speed, using the ball bank indicator as outlined in the Division of Traffic Services Circular No. 4-49, dated August 22, 1949, and then to post a speed value five or ten miles less than that figure. This practice, no doubt, arose from the belief that to post a lower value would be conservative and thus promote safety. Actually, such is not the case, for the instructions from the Circular referred to above already include a safety factor. If the motorist cannot rely on the signing's uniformity from place to place, a great deal of the value of the signing is lost. A too low value for the signing is every bit as reckless as would be a value which is actually too high.

For the sake of statewide uniformity, we again urge each District to follow the instructions for marking curves with safe speed indications as they are written in Division of Traffic Services Circular No. 4-49 and correct the erroneous signs now erected.

OBSTRUCTION MARKERS FOR ENDS OF NARROW BRIDGES

A number of the Districts are using an obstruction marker at the ends of narrow bridges which has an alternate plain black stripe and a yellow reflectorized stripe of the Chevron type design. Neither the color combination nor design of the stripe conforms to the latest approved AASHO design, which has been adopted as a national standard.

This type obstruction marker has proved to be sufficiently effective that its use has spread among the Districts, and in order to secure a uniform design throughout the State, a standard AASHO design has recently been sent out as a supplementary sheet for the Sign Manual. This design conforms not only to the national standard but to the provisions of the Uniform Act Regulating Traffic on Highways, which was enacted by the Fiftieth Texas Legislature. It is intended for use on all new markers of this type that are erected and on a replacement basis when it becomes necessary to renew the Chevron type markers now in place.

One example of the effectiveness of this general type of Obstruction Marker has come to the attention of the Highway Department. The following two letters speak for themselves.

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State Highway Engineer
Austin, Texas

Dear Sir:

Our wrecker has picked up five major wrecks at one bridge five miles N.E. of El Campo on Highway 59. Naturally we appreciate the business but we feel that this particular bridge is a hazard that should not continue. The trouble seems to be that the pavement narrows down too abruptly as it approaches the bridge. We won't attempt to state what corrections should be made but the wrecks that occur are of such a major nature that we feel the structure should be lighted or properly cautioned, pending whatever major repairs you finally plan to make.

Our interest in the matter is purely from a humanitarian point of view, as we have said previously, the more wrecks the more we make but even the undertaker feels some sense of public responsibility.

Sincerely yours,

/s/ John L. Russell

Mr. D. C. Greer
State Highway Engineer
Austin, Texas

Dear Mr. Greer:

If you will remember I am the persistent citizen with the wrecker who has complained of too much business at one particular bridge five miles east of El Campo on Highway 59. I thoroughly enjoy my privilege of complaining and I want to be fair enough to give proper credit when the complaint has been remedied in the best and most practical manner.

I notice that about a month ago your maintenance department erected large diagonal warning boards immediately over the bannisters of all the narrow bridges from Rosenberg to Edna on Highway 59. In the thirty day test period we have had only one wreck between El Campo and Wharton and we can say for your benefit that it did not occur at a bridge. This is by far the longest period of time in the last few years that this section of road has not reported several disastrous bridge wrecks. Please let me thank you and congratulate you on your prompt handling of this hazardous situation.

Very truly yours,

/s/ John L. Russell

Edge Repair Of Asphalt Surfaces With Asphaltic Concrete In District 24

by E. W. Mars
District Engineer

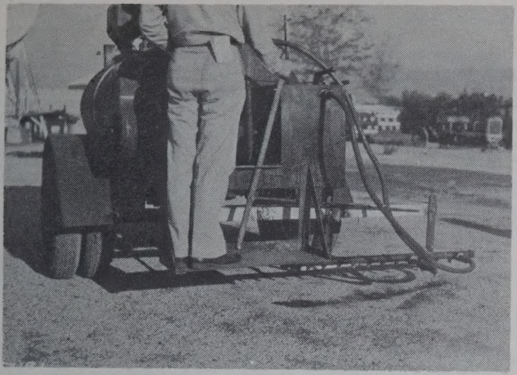
District 24 has many miles of older penetration asphalt surfaces. The edges of these surfaces are badly broken in many instances especially on narrow pavement where the heavy trucks ride the edge. Mr. Max W. Moore, Assistant District Engineer, and Mr. Victor Searcy, District Maintenance Engineer, discussed ways and means of repairing these edges economically and a satisfactory method has been worked out.

The method decided upon consists of the following operations:

1. Broom edge of existing pavement.
2. Apply 0.15 tack-coat of RC-2 (heavier on base or earth) with a small distributor having a sliding spray bar.
3. With spreader box developed for the work, spread special Type Q Asphaltic Concrete at approximately 50-pounds per square yard.
4. Spread Asphaltic Concrete with special multiple blade developed for the project--blade attached to small farm tractor.
5. Straighten edges of spread Asphaltic Concrete with push-brooms and raking. Special "Squeegee" board used to smooth out the riding surface where necessary. Roll with pull-roller--usually pulled by a small farm tractor.
6. Cover with Limestone Rock Asphalt Dust and roll again.

The equipment developed for this work makes it possible to repair approximately a mile to three miles a day of 8-hours, in widths from 6" up to 36", up to most any desired compacted depth. The box which places the Asphaltic Concrete material can be used to put out any amount of the material but the spreading device following this box is limited to a maximum of 36", this being the maximum width of the A. C. Tractor, used in connection with this spreader. It is possible to lay 6" Asphaltic Concrete strip with this equipment, the only drawback being to get a true line.

We consider the above described operation very economical and plan to do many miles of repair along our highways during the months to come.



No. 1. One of six 600-Gallon Asphalt Pots equipped with a sliding spray bar which holds the spray bar in line with edge of pavement.

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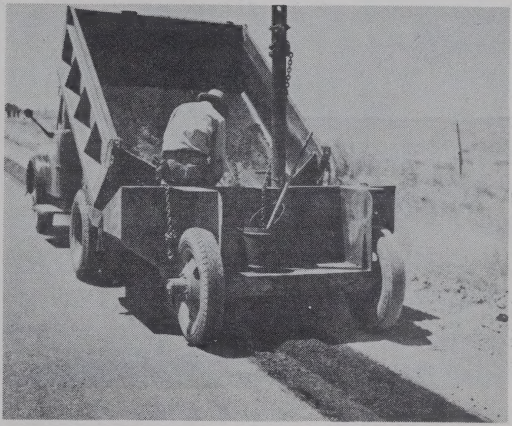
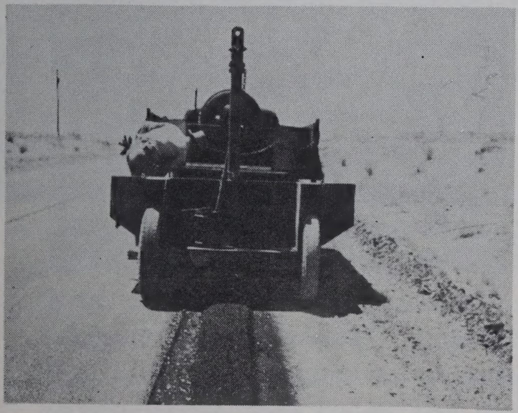
Nos. 2, 3. Tack-coat in front of box and placing material through the box. In this instance 2-ft. in width and 50-lbs. per square yard. (Note the hinged end-gates of the truck.)





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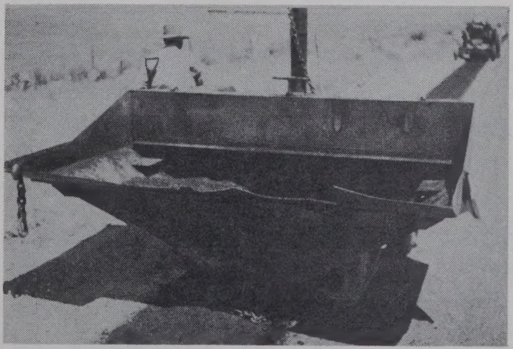
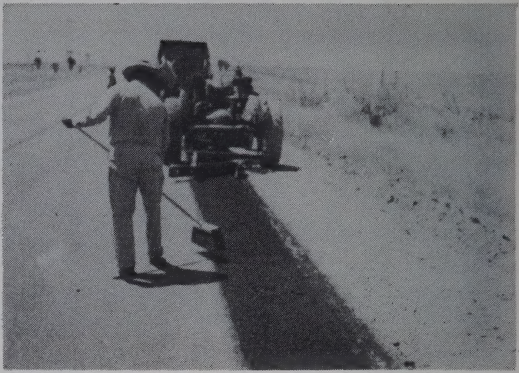
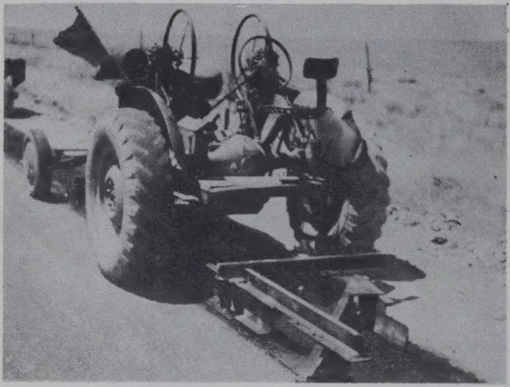
No. 4. Waiting for load.

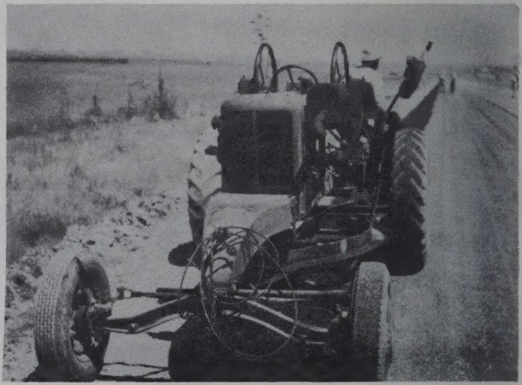


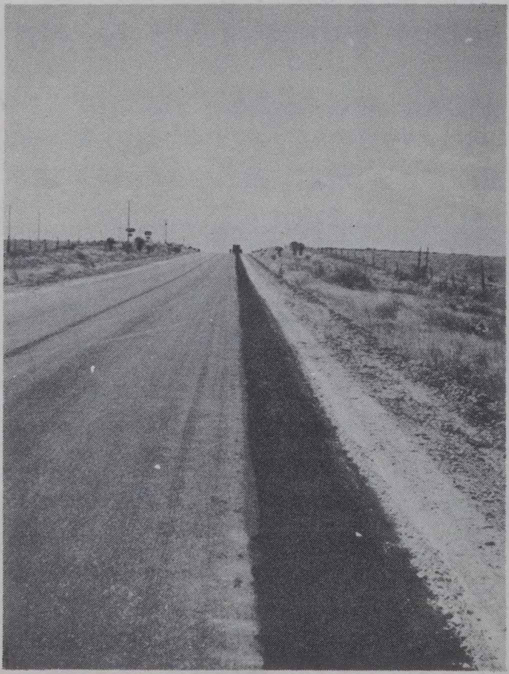
No. 5. Complete operation, box placing material, multiple blade spreading material and man cleaning edge prior to rolling.





Nos. 6, 7. Multiple blade in operation.





No. 8. Material ready for roller.

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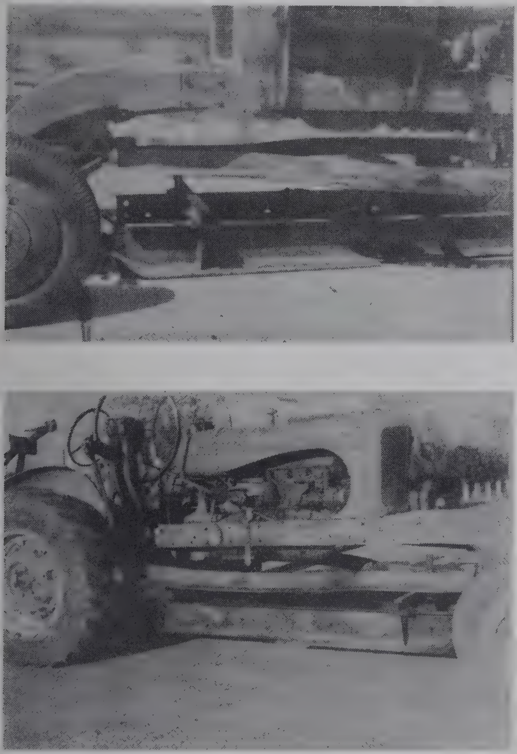
Penetration Asphalt Surfacing

by Cooper Dewey
Senior Resident Engineer
District 12

Asphalt surfaces are surface courses used to protect underlying courses by taking the wear of traffic and resisting the effects of moisture and oxidation. Generally this type of surfacing is placed on a compacted flexible base or it may be used as a seal coat on a previously placed asphalt surface. The type of surface and rates of application of asphalt and aggregate will be indicated on the plans for the project. A prime coat is usually applied to a flexible base prior to placing the asphalt surface. The prime coat consists of an application of cut-back asphalt as specified by the plans and specifications. A thorough study of the plans and specifications should be made prior to the beginning of work.

(Continued)



Nos. 9, 10. Multiple blade attached to small A. C. Tractor, the multiple blade is attached to the circle that holds the mold board, and the operator has the same control of the blade as he has of a maintainer blade while blading shoulders. (Note Picture No. 6. It is possible to lengthen the last blade and feather-edge any of the extra material to conform to irregular surfaces, if desired.)

The construction of the various types of asphalt surfacing, such as Seal Coats, Doubles, Triples, etc., which consist of one, two, or three applications each of asphalt and aggregate, follow essentially the same construction procedure. Stated in another way the methods used for constructing a double asphalt surface include those used for either a seal coat or a triple asphalt surface. It is for this reason that a discussion of the application of a "double" has been selected, including the testing of contractor's equipment, materials, and other various items. A detailed description of some testing requirements will not be covered as they are subject to modification from time to time.

The construction features of the double asphalt surface treatment follow in the usual order in which they are done.

STAKING: Station stakes are needed for the control of the project. These stakes are placed at 100' or 200' intervals on tangents and close enough on curves to produce a smooth curve. Stakes should be placed in the right-of-way line if possible. If placed on the shoulder or slope, they should be removed after the project is accepted.

EQUIPMENT: The testing, calibration, and inspection of the contractor's equipment is a subject within itself. Reference is made to the appendix of this paper for this information. In addition to this information, a few comments on the use of the asphalt distributor are offered.

The overlapping spray system indicated by Cut H attached is preferred because it has less tendency to streak. For the same reason 3/32" spray nozzles are preferred over 1/8" nozzles. Streaking is caused by the improper adjustments of nozzles height of spray bar from the base, strong winds, gravel or dirt in the distributor tank or lines, coke in the spray bars or tank and last but not least, cold asphalt. The nozzles now in use tend to deliver asphalt in heavy dark streaks at the outer edge of the sprays. Improper adjustment causes the asphalt to fall in heavy and light streaks on the base. Proper adjustment of the spray bars is of extreme importance. The height of bars above the base will vary with the type of bar, the distributor pump pressure and to some extent the type of asphalt. In most cases a nozzle height of about 8" above the base and an output of 250 GPM through the pump will prove satisfactory. Nozzles are turned to an angle (about 14 degrees) which prevents the sprays from intersecting.

These adjustments must be checked by actual operation of the distributor spray bar system. The distributor is partially filled with water and parked on the base or an adjacent section of similar cross-section. The spray system is turned on and each individual nozzle is checked or adjusted until all sprays are operating without intersection. The spray bars are raised or lowered as required to place the outer edge of the sprays under the center of the adjacent nozzle. The variation in nozzles and the peculiarities of various distributors permit no set rules or adjustments for a spray bar system. Each distributor and spray bar system must be tested and calibrated in order that it may function as intended.

MATERIALS: Each material to be used in the work must be tested in accordance with the governing specifications. Reference should also be made to the "Minimum Requirements Governing Tests of Materials" in current use at the time work is under way. Records of each shipment of materials received are placed in a bound field book. Each material must be tested prior to use in the work.

Asphalt is, in most cases, sampled at the refinery and tested in the Austin Laboratory. In case no test report is received, it will be necessary to secure a one-half gallon sample and forward to Austin for testing. Aggregate shipped in railroad cars tends to be segregated. The material is loaded into the cars at the processing plant by means of a chute. This results in the finer aggregate remaining in the center of the pile and the coarser aggregate falling around the outer edges. Sometimes these piles of aggregate are leveled off at the processing plant and when the car reaches the job the material looks uniform. For this reason the sample for testing should be taken from several places in the car and quartered down to the amount desired for screen tests. The contractor should remix the aggregate as it is loaded into the trucks.

PRIME COAT: The prime coat is used to provide a bond between the base and asphalt surface. The base must be compacted clean and as dry as possible before application of the prime coat. It is cleaned by rotary and hand brooms. In some cases it may be necessary to sprinkle the base lightly to ball up the dust left after brooming. This depends on the character of the base. After the base is prepared, a nail line is established on one edge of the proposed prime coat. The nails are driven at the same intervals the stakes were set for alignment of the prime coat and are later used for the asphalt surface. The contractor places a string line on these nails and the distributor is driven along this line while applying the asphalt. The base is inspected "on foot" before each application of asphalt. The distributor should be parked on the shoulder or in the ditch to prevent dripping of asphalt on the base. When the base has been prepared, the distributor tank is strapped and the temperature of the asphalt secured. The asphalt is then applied at the rate specified on the plans. Good distributor operators should be capable of applying the asphalt within 0.005 gallon per square yard of the rate specified. The cut-back asphalt for prime coat is applied at a temperature of approximately 150 degrees and, if possible, during the heat of the day to secure maximum penetration. Prime coat or any other type of asphalt is not to be applied if rain is threatening. Sometimes it is desirable to roll the prime coat soon after the application in order to roll out fat spots in the small depressions and hasten the curing. Generally one to three days curing time is required before asphalt surfacing can be placed. If possible traffic should be kept off the prime coat until all free asphalt has disappeared from the surface of the base.

FIRST COURSE ASPHALT: Dust, mud, and other objectionable matter are removed from the prime coat before application of the first course of asphalt. The string line is straightened up or moved over if required for aligning the asphalt surfacing. The length of the application of asphalt is determined by the number of truck loads of aggregate needed to cover a length of application within the gallonage capacity of the distributor. Two or three widths of building paper are placed on the base at the beginning of the application. The paper is weighted down with No. 1 aggregate. One strip is placed at the end of the application to eliminate ragged joints. The spray bars of the distributor should be heated prior to the application if the weather is cool or if there is any possibility of cold asphalt in the nozzles. This should also be done if the period between applications is long. The distributor is now strapped and the temperature recorded. It is then driven on the base about three lengths back of the starting joint. The spray bars are checked for alignment and height.

The application is made by driving the distributor over the joint at the speed required to secure the desired rate of asphalt and maintaining that speed to the end of the application. The asphalt is cut off on the paper previously placed and the distributor driven off the base without stopping. The paper is dragged off the base and stacked up for removal at the end of the day's work. No mention has been made of what can and does happen while the distributor is making the "shot" or application of asphalt. In some cases a nozzle or several nozzles will fail to open or spray with the rest of them. They generally open shortly after passing the paper, that is, if no pebbles or coke are in them in which case they will not open at all. The distributor should be stopped if the nozzles do not open within a short distance. Patching of small areas can be done with a gallon bucket and putty knife. Large areas will have to be patched with a five gallon bucket or hand spray. It is difficult if not impossible to patch with these tools and secure the specified rate of asphalt on the uncovered areas. Almost always the areas are "too fat." Patching is bad business and indicates that somebody fell down on the job. Every effort should be made to prevent this condition before making the application.

NO. 1 AGGREGATE: The No. 1 aggregate which is the largest size of the two aggregates used in a double asphalt surface is placed on the freshly applied asphalt. This material is dumped from the truck into a rock spreading machine which is attached to the back end of the truck. The truck backs up over the section of asphalt needed to use up the load of material at the rate specified by the plans. The material is spread evenly by the machine as this is done. It is desirable to have the material left at the end of the asphalt section so that the machine can spread material as the truck drives out to the beginning of the section being treated. The aggregate must be spread evenly over each truck load section. Uneven applications of aggregate are very difficult to move with the patrol grader and they usually have to be removed by hand labor.

After some 1500 feet or so of asphalt application have been covered with aggregate, the patrol grader begins shaping up the aggregate for the next application of asphalt. The grader must be tight and in good operating condition. The wheels, lift arms and circle are inspected occasionally to determine if they are tight. The grader sections are made as long as possible to reduce the number of turn arounds or "joints." The blading of the section by the grader must be observed closely. The grader may travel fairly fast at first while shaping up the aggregate but must be slowed down on the last blading to prevent any possibility of corrugations in the material. All oversize aggregate, dirt, mud and other foreign matter are removed during blading operations. Each side of the aggregate application must be shaped and trimmed to the edge of the asphalt application. The edges are shaped ahead of the blade grader. Material is pulled over thin spots and excess material cast to the center of the road.

The grader does not work the edges until the last blading. The edges are then pulled toward the center of the road maintaining the grade and depth of aggregate desired. Generally all material will be of a coarser nature during the last blading. The material is brought to the center and should be in a uniform roll. If it is not, it is bladed until it is that way. The roll is then square-bladed into two uniform rolls each side of centerline and each roll is fanned to the edges. This results in a uniform and even texture on the surface as well as good riding qualities. During final blading operations the aggregate distribution must be observed. The depth of material must be uniform over the entire section and spot checks at the center, quarter points and edges should be made. There must be no corrugations. The foreman or blade operator should be advised of any irregularities in the section in order that they may be corrected before the grader is moved ahead on the next section. The section is broomed lightly after blading operations. The broom is pulled at such speed as is necessary to evenly distribute the surface part of the aggregate but not fast enough to cause it to "jump." The "jumping" causes corrugations.

After brooming the next operation is rolling. The roller must be of the type specified in the specifications. Rolling is done at about 2 MPH to prevent displacement of the material. The roller should not be permitted to turn on the aggregate. The section is ready for the next application of asphalt after rolling is completed.

SECOND COURSE ASPHALT: This application is made in the same manner as the first one, covering the aggregate with the specified amount of asphalt. Patching of this layer of asphalt becomes more difficult so let's eliminate the need for it.

NO. 2 AGGREGATE: The No. 2 aggregate which is the smaller size of the two aggregates is applied in the same manner as the No. 1 aggregate. It may be found that on very hot days the material will not permit brooming without pulling out the No. 1 aggregate. In this case, brooming is delayed until the asphalt has cooled. It is then rolled thoroughly by "bull-wheeling." Three-wheel and/or pneumatic rollers may be required by the specifications. Rolling is usually continued on two hot successive days after the application has been made. The aggregate is kept on the surface and maintained until the project is accepted. The purpose of rolling and maintenance is to get the No. 2 aggregate down into the voids of the No. 1 aggregate and seal the asphalt surface completely. Another and a very important reason for sealing quickly is to eliminate as soon as possible the "flying gravel" kicked up by traffic.

Quantities and other data required on the daily report (Form No. 187) are to be kept daily in a bound field book as the work progresses. Final calculations of quantities on each item of work are placed in a field book and submitted to the district office with the final estimate.

APPENDIX

Testing Asphalt Distributor Tachometer: Tachometers operating from the regular wheels of the distributor or from the driving mechanism are not very satisfactory. The tachometer should be driven by an independent wheel equipped with rubber tire so designed and mounted that it may be raised out of the operating position when truck is going to and from the job; and when lowered to contact with the road surface there will be sufficient weight to hold it in contact while the distributor is in operation. The driving wheel should be connected to an indicating instrument placed in clear view of the driver of the truck. This instrument is to be of the type that will indicate speed in feet per minute. The pointer indicating the speed should have a travel from zero feet per minute to not more than one thousand feet per minute, graduations to be five foot per minute, or less.

The Inspector in charge of penetration work will have to stake the project according to standard requirements at one hundred foot intervals; therefore, with the distributor empty it may be driven on the road which has been staked and with the regular driver operating the distributor. It should be driven over a measured course of one thousand or more feet at a definite speed of five hundred feet per minute, and by observing the exact time the distributor passes the first mark, and then recording the time it passes the one thousand foot mark, the accuracy of the machine can be checked This should be within 1%, or the tachometer will not be acceptable. Accuracy should also be checked at the speed at which the distributor must operate. If the driving mechanism of the tachometer is adjustable for speed, and the above test indicates that it is not accurate, it will be satisfactory to change the adjustments to bring it within the limitations of 1% allowable error. Then the adjustable mechanism should be either sealed or marked to show the exact setting so that the Inspector may later examine it from time to time to see that it has not been changed.

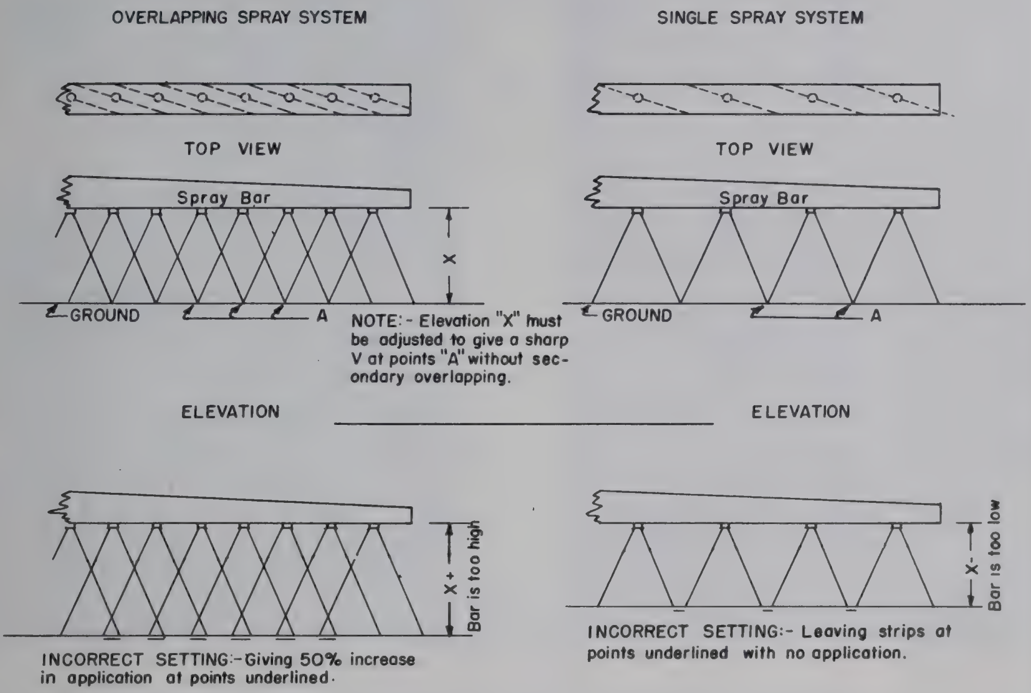
Calibrating and Testing the Aslphalt Distributor: If the asphalt distributor has not previously been used on State Highway work, or if there have been changes in size, or in the interior of the tank, it will be necessary for it to be very carefully calibrated or strapped.If the tank has been previously calibrated by an engineer of the Texas Highway Department, and an examination of the interior indicates that there have been no changes, it will be satisfactory to use the original strapping figures, when they are presented in the form of the original sworn statement.

When a distributor is received on the job, it is necessary for it to be thoroughly cleaned by the contractor. This will mean the removal of all asphalt that may have been used previously in the distributor, and if coke or scale has accumulated on the walls or on the fire tubes, this should be very carefully scraped away, leaving a clean interior surface. It will be necessary that the Inspector go inside the distributor tank with a light and examine the wall and fire tubes carefully to determine if this has been properly done. In going into a distributor be very careful that there are no fumes of gasoline or other gases that might be dangerous in an enclosed space. Do not use open flame or light in the tank. If the tank is clean, the Inspector should then measure the interior of the tank; these measurements should show the interior length, etc. If there is a bulge in the end plates this will require measurement through the center of the tank as well as along the sides. If the tank is of the elliptical type, it will be necessary for the vertical depth to be measured as well as the horizontal width. This measurement should be taken at both the center and the ends if there is a change in diameter; then a measurement must be made of the piping inside the tank, such as the fire tubes, etc. We suggest that circumference of the round tubes be measured. A careful record should be made of all these measurements. While the Inspector is in the tank, he should examine the volume gauge float to see that it is operating properly, by raising it slowly and having someone on the rear of the distributor observe the action of the pointer on the indicating dial. The Inspector should also examine the location of the bulb of the permanently mounted thermometer to see that this bulb is immediately above the fire tube and not more than three inches away from the top of the tube. This bulb should be immediately over the hottest point in the fire tube and the indicating dial of the thermometer should be so placed that it is in clear view of the operator on the rear of the truck. The Inspector should also examine the position of the thermometer well to see that it extends properly into the tank to give a correct reading of the temperature of the asphalt. This well should be in such a position that the end will be immediately adjacent to the bulb of the permanently mounted thermometer in order that an Inspector may, at any time lower a standard thermometer into this well and check the permanently mounted thermometer on the distributor. After this examination, the findings should be written down and signed by the Inspector making the examination, and one signed copy of this report placed in the permanent records for the project. If the distributor has previously been calibrated, the measurements so taken should be checked against the original measurements at the time of calibration and, if they are the same, the original calibration will be accepted as satisfactory. If changes have been made in the interior dimensions, it will be necessary for a new calibration to be made.

After an inspection of the interior of the tank has proven it to be properly cleaned and it is desired to calibrate the tank, this is accomplished by pouring measured amounts of water into the tank in increments of ten gallons, and measuring the depth through the full capacity of the distributor. To make this calibration, the tank must be in a level position, and it is started by first pouring enough water into the tank to completely fill all pipe connections until water will stand about one-sixteenth of an inch deep on the bottom of the distributor tank. Record the amount water necessary to fill these pipe connections; then add water slowly keeping check on the depth of water for each ten gallons added until the water level reaches the top. The depth measurements are made with either a wooden rule or the regular steel rod used in making depth measurements in the tank when the distrubutor is in use. This rod should be stiff enough to eliminate any possibility of bending as it is inserted into the tank; however, it should be held firmly against the bottom of the tank in making the actual test. Low-

CUT-H

DISTRIBUTOR SPRAYBAR ADJUSTMENT



NOTE: - Elevation "X" must be adjusted to give a sharp V at points "A" without secondary overlapping.

INCORRECT SETTING:-Giving 50% increase in application at points underlined.

INCORRECT SETTING:- Leaving strips at points underlined with no application.

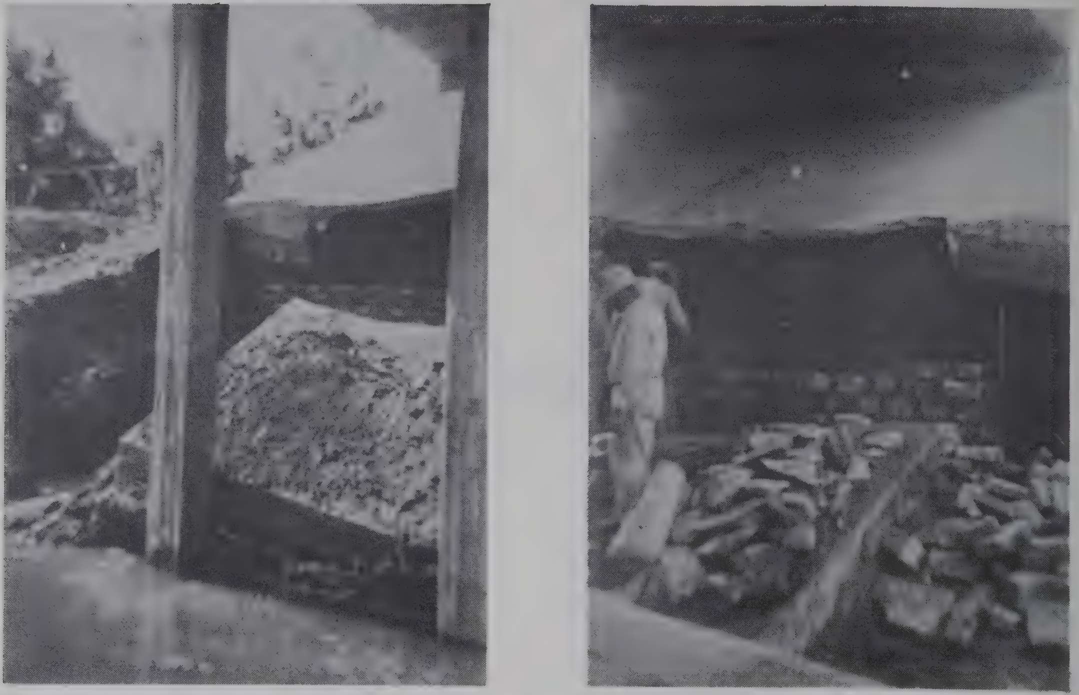
HEIGHT OF SPRAYBAR AND SPACING OF SPRAYS SHOULD BE CHECKED TO INSURE UNIFORM DISTRIBUTION.

er this measuring rod vertically in the center of the tank, as this will be the lowest point, and measurements on either side would be erroneous. This calibration should be in the presence of the Resident Engineer, who will, after completion of same, make a careful copy, adding to this the internal measurements of the distributor so calibrated. The Resident Engineer will sign this under affidavit, retaining one copy for the Resident File and giving one copy to the contractor.

Testing the Distributor Volume Gauge: If the tank is to be calibrated, the testing of the volume gauge will consist of recording the gauge reading at the time a record is made of the gallons required to fill the tank in ten gallon increments. If the tank has been found satisfactory and previous calibration is to be accepted, then the volume gauge will be tested as follows:

When the contractor is ready to load the distributor for the first time, the Inspector will be present, and after about fifty gallons of asphalt (by estima-

METHOD OF REPAIRING RIP-RAP AT BRIDGE ENDS IN DISTRICT #2



The pictures above show damage to the slope, and undermining and partial destruction of the slope protection at Salt Creek Bridge, on F.M. Rd. 206, in Jack County. This type of damage has occurred several times in District 2, and the construction of a masonry wall to protect the slope and close off the damaged area is one of the methods of repairs in use by this District where such local materials are readily available.

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tion) have been placed in the tank, the flow of asphalt will be shut off, the depth measurement made, and the depth gauge reading taken. With the depth measurement you can take the gallons in the tank from the calibration chart; thus the depth gauge reading can be compared to the actual number of gallons in the tank. Next, introduce about fifty gallons more of asphalt, make the depth measurement and read the gauge again. Repeat this procedure when the tank is one-quarter, one-half, three-quarters full, and when the tank is loaded.

If the first one-hundred-gallon test does not give readings that are accurate, the distributor should be emptied and the depth gauge should be repaired. The gauge should be reasonably accurate throughout the entire range.

COMMISSION
FRED A. WEMPLE, CHAIRMAN
A. F. MITCHELL
ROBT. J. POTTS

TEXAS HIGHWAY DEPARTMENT
AUSTIN 26, TEXAS

STATE HIGHWAY ENGINEER
D. C. GREER

June 5, 1950

FILE NO.
D-3

Mr. Leo Ehlinger
District Engineer
Brownwood, Texas

Dear Mr. Ehlinger:

This refers to recent correspondence to the Districts from Mr. Waller concerning the renewing and publishing of a bulletin for the purpose of exchanging ideas between Districts.

We have a letter in this office which you wrote, dated December 23, 1947, on the subject "Asphalt, Grass and Weed Clipping Erosion Control and Mulching." We feel sure that the information in this letter will be very interesting and instructive to all Districts and, as a consequence, expect to include it in the bulletin to be published at an early date.

In this connection, would it be possible for you to give us a brief up-to-date report covering the results of this work and furnish us with a few pictures with the report? On recent trips to your District we have noticed the effective results of this work and we will, very much, appreciate your assistance in passing this on to other Districts.

Sincerely yours,

D. C. Greer
State Highway Engineer

By: PS Bailey
P. S. Bailey
Maintenance Engineer

PSB:pr

Asphalt, Grass And Weed Clipping Erosion Control And Mulching

by Leo Ehlinger
District Engineer
District No. 23

1. The use of asphalt on back slopes to prevent erosion and to help the germination of seed and growth of grasses was a result of an experiment in the Corpus Christi District when Mr. C. A. Bradshaw, Maintenance Superintendent in this district, was in charge of maintenance in that district prior to 1932.

There was a section of concrete pavement in that district that had very sandy shoulders and which was eroding very badly due to wind action although there was a fair amount of grass, etc. growing on this shoulder. After much discussion Mr. Bradshaw was permitted to distribute about 0.3 of a gallon of asphalt on these shoulders although it was feared that this asphalt would kill all vegetation. However, the result was that the erosion was stopped and the vegetation stayed greener and grew better even during the dry season than any other place.

2. This district having a considerable amount of back slopes in cuts, the soil of which is either a caliche or a mixture of caliche and clay upon which no vegetation could gain a foothold due to sheet erosion, this district distributed both RC-2 and RO-3 asphalt in the amount of about 0.3 of a gallon per square yard on these slopes with a result that grass and weed seeds have germinated better and the vegetation has gained a foothold and grew to a considerable extent even during the extreme dry period we have had since May of 1947.

The vital thing to remember in the use of asphalt for mulching and erosion control is to distribute this asphalt when these slopes have absorbed a considerable amount of moisture from rains and are only dry on the surface.

It is believed that the main factor is that this moisture is held in the soil long enough to permit the germination of seeds and the growth of the vegetation although I do believe that there is some fertilizing property in asphalt.

The other factor is that this asphalt entirely eliminates sheet and other erosion on the slopes until such time as vegetation has gained a considerable foothold.

3. The Naphtha, gasoline or other volatiles in cut-back or road oil does not seem to have any effect on the vegetation as we have seen no evidence of burning of even tender vegetation.

It is believed that these volatiles evaporate too rapidly to have any effect.

GRASS AND WEED CLIPPING MULCHING

1. All highways in this district are mowed about twice a year and it has been a considerable problem as to the most economical method of disposing of the dried cuttings.

To mow a highway and then leave the cuttings in place created a greater fire hazard than before.

It was therefore necessary to either burn off these clippings as they were in place with the resultant danger to traffic caused by smoke and the starting of fires in adjacent pastures or hiring mechanical rakes and raking these clippings into windrows and then burning same, which of course resulted in additional cost.

2. This district therefore after discussion of this matter decided to try the method of loading these clippings into trucks, hauling same to cuts that had bare backslopes and spreading these clippings over the entire backslope and then tacking this mulch down by placing shovelfuls of soil on same at a spacing of about 5 feet.

3. This method resulted in only a very slightly higher cost than the old method of raking into windrows and then burning and which was more than offset by the result achieved.

4. As stated above, we have had an extreme drought since May with only a very small amount of rain each month and the moisture in the soil which was not protected by this mulch evaporated immediately.

All backslopes where this method was used now have a considerable amount of vegetation growing on same as practically all grass and weed seeds that were placed on the backslopes with this mulch have germinated and the resulting growth has been better than on any section of our highways even though most of these backslopes are entirely devoid of top soil and would be considered a sterile soil.

5. During the next season this district instead of tacking this mulch down with shovelfuls of soil is going to spray about 0.1 to 0.15 of a gallon of asphalt over the entire mulch which it is believed will prevent high winds from blowing this mulch off of the backslope yet permit all moisture from rain to penetrate readily into the soil of backslope.

Clippings secured by asphalt.

COMMISSION
FRED A. WEMPLE, CHAIRMAN
A. F. MITCHELL
ROBT. J. POTTS

TEXAS HIGHWAY DEPARTMENT

STATE HIGHWAY ENGINEER
D. C. GREER

Yoakum, Texas
June 2, 1950

FILE NO.
D-3

Mr. D. C. Greer
State Highway Engineer
Austin, Texas

Dear Sir:

Attached are pictures and a pencil sketch of a box we are using in placing string line on day labor asphalt work in this District.

The first one of these boxes was devised by Mr. W. A. King, Senior Resident Engineer, Victoria, and he uses it on all of his asphalt work. It has proven to be so convenient, I thought perhaps you would like to publicize it through the information exchange.

Very truly yours

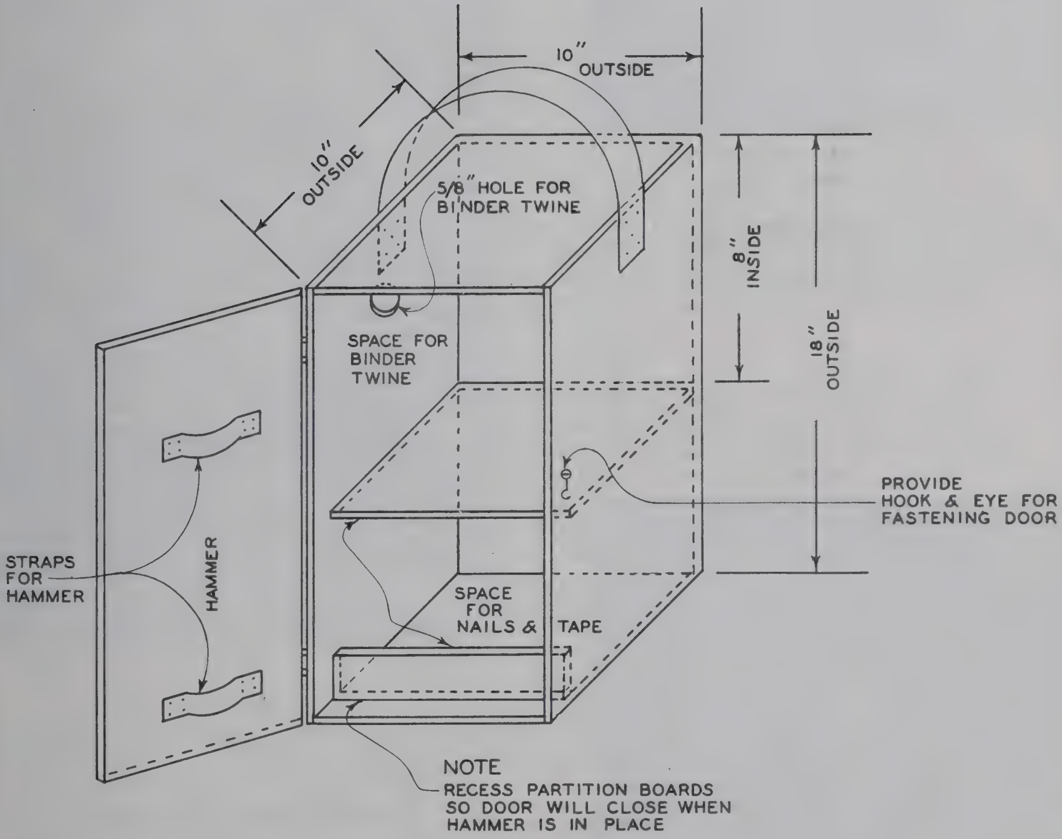
M. G. Cornelius
District Engineer

By: Zay Johnson
Zay Johnson &
District Maint. Engineer

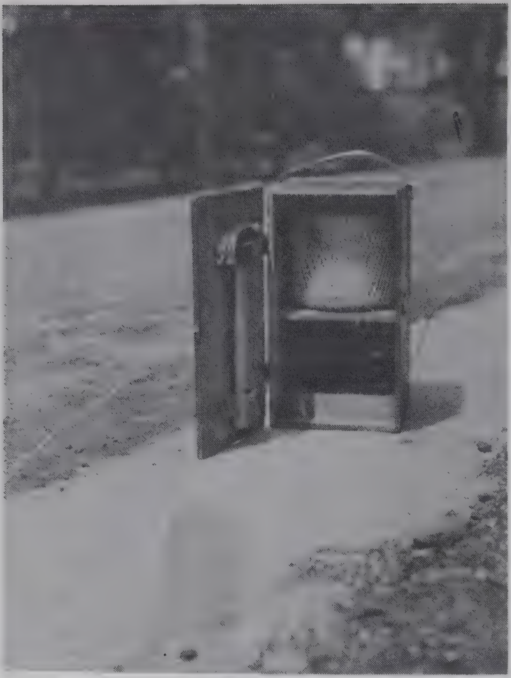
ZJ:la

encl.

DEVICE USED BY DISTRICT 13 TO FEED TWINE FOR STRING LINE ON DAY LABOR ASPHALT WORK

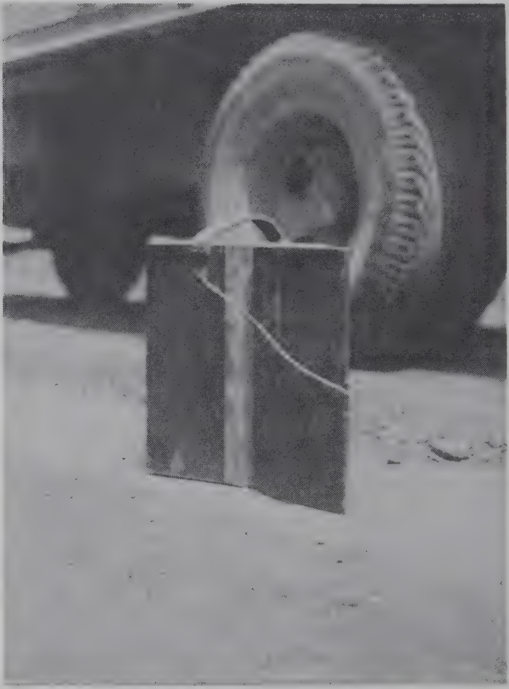

10" OUTSIDE
10" OUTSIDE
5/8" HOLE FOR BINDER TWINE
8" INSIDE
18" OUTSIDE
SPACE FOR BINDER TWINE
PROVIDE HOOK & EYE FOR FASTENING DOOR
STRAPS FOR HAMMER
HAMMER
SPACE FOR NAILS & TAPE
NOTE
RECESS PARTITION BOARDS SO DOOR WILL CLOSE WHEN HAMMER IS IN PLACE

(Designed by Mr. W. A. King, Sr. Res. Engr., Victoria, Texas)



By constructing box as dimensioned above the twine is automatically fed or spooled out as a man walks along with box in hand or with box sitting in back of a pickup. Hammer is kept in inside of door while nails and tape are in bottom compartment; this also gives necessary weight to steady box when it is set down. All twine will feed out without any loss.

Box should be painted bright color, same as equipment.



This box for use in placing string line near edge of asphalt. The line is used for setting the "feeler" of asphalt distributor enabling the driver to place the asphalt to a straight line or desired curve. Line is usually set with binder twine which takes considerable time to handle. The twine becomes twisted and knotted especially when getting near the end and entire roll collapses.

COMMISSION
FRED A. WEMPLE, CHAIRMAN
A. F. MITCHELL
ROBT. J. POTTS

TEXAS HIGHWAY DEPARTMENT

STATE HIGHWAY ENGINEER
D. C. GREER

2300 Roosevelt Avenue
San Antonio 10, Texas

June 9, 1950

FILE NO.

File D-4

Bexar County General

Mr. D. C. Greer,
State Highway Engineer
Austin, Texas

Dear Sir:

Attached hereto are a series of photographs of the utility body pickup recently purchased by this District. As you know, this is the third unit of this type which we have placed in service during the last year or year and a half. Two of these units are used by our traveling mechanics and the third by our City Sign crew.

We have found that these units pay for themselves in a very short period by means of increased convenience and protection to tools and parts. A considerable saving in mileage is developed by our procedure in carrying a supply of small parts such as plugs, fan belts, carburetor and ignition kits and other frequently used parts in each of these vehicles. Very often a mechanic visits a section or residency for the purpose of repairing a piece of equipment and finds that minor repairs are needed on other equipment in the area. The fact that he has available on his truck bolts and parts often prevents the occasion for major repairs or additional trips to the area within a few days.

We have made only a minor modification of these bodies as delivered. The bed sides have been faced with Oak lumber to avoid bending by heavy loads in the pickup. A heavy bumper with trailer hitch has been placed on each. This bumper is fabricated in our shop of a 5 or 6-inch channel and is set about 1 foot back of the bed. The area between the body and the bumper is filled in with heavy sheet metal to form a solid working space. As you will note from the pictures, a vice is mounted on this bumper. The enclosed tool space permits us to carry some items of equipment ordinarily considered as shop equipment without danger of damage by dust and weather. This greatly facilitates the mechanic's work in the field. Each of the shop units are equipped with acetylene welding and cutting tools.

The pickups on which these bodies are mounted are all 1-ton Chevrolets with oversize tires and four speed transmissions. Two of the pickups have heavy-duty motors, As this heavy-duty motor is of approximately the same power as the current pickup motor, we do not consider that other than the present standard 1-ton truck is necessary. It is desirable, however, to equip these pickups with overload springs to absorb the shock of loading heavy motors or other heavy parts.

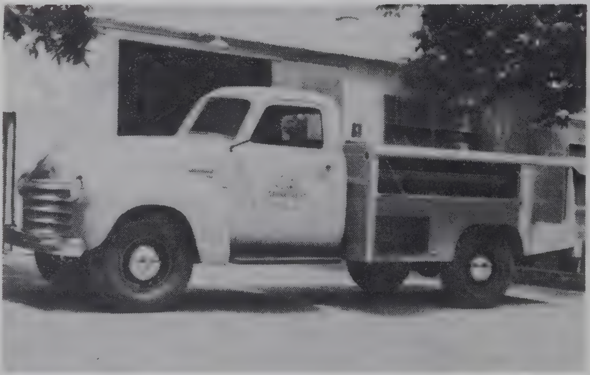
Since the substitute of these utility trucks for the flatbeds used earlier in this District, our records indicate a considerable reduction in the cost of our field repairs of major equipment and a considerable reduction in the number of service calls for minor repairs.

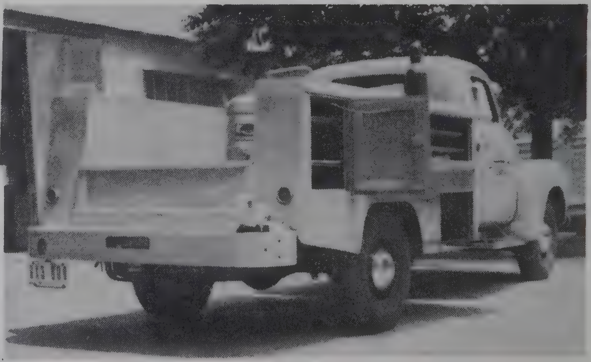
If further information on the use of these trucks is desired, please do not hesitate to advise us.

Very truly yours,

R L Faltinson

R. L. Faltinson,
District Engineer





John Nations and Percy Bailey inspect the varied assortment of metallic articles collected from the highways by the mobile nail picker.

Typical haul . . .

Texas Highway Department
Form 433-B 11-49-40m

INTEROFFICE MEMORANDUM

Date June 20, 1950

TO: Mr. John B. Nations

Responsible

FROM: R. W. Townsley, Superintendent of Camp Hubbard Shops

Desk JBN

SUBJECT: Details, Design and Construction Notes on Electro-Magnetic Nail Picker

We expect to start road testing the new electro magnetic nail picker unit sometime this week. The new unit has been changed radically in design and appearance from the old unit which has been on the road for some fifteen years.

In the new unit we have tried to incorporate only standard parts which may be obtained from local dealers in Texas. The main objection to the old unit was that we were required to secure repair parts from sources out of the State. Much of the "down time" of this unit was caused by the delay in delivery of repair parts.

We found that the generator, magnets, and all component parts could be mounted in a Chevrolet canopy express job if certain modifications were made to this type of equipment. These modifications were made at the factory and have the appearance of a factory job. The unit will be equipped with a heavy duty 17 quart capacity radiator instead of the regular 15 quart radiator and this should make for cooler operation at slow speeds. This unit is equipped with dual 7.00-18 8-ply rear tires, double-acting front and rear shock absorbers, 4 wheel hydraulic brakes with hydrovac booster, and several improvements in the cab which will give more driver comfort.

For the purpose of magnetizing the magnets, we secured a standard Kohler Model 5A-1 5-KW Electric Power Plant. This unit is standard equipment with Kohler and repair parts may be obtained from sixteen (16) Kohler dealers in Texas. The magnets were constructed here in Austin and represent the only special equipment on this unit. Instead of purchasing only one set of magnets, we purchased two sets so we will have one in reserve if trouble developes. The unit will be equipped with a spare repair parts box containing all parts necessary to make immediate repairs to the electrical, cooling, and general mechanical systems of the unit. In this way, it is believed, any repairs may be made to this unit in any of our District Shops.

This unit, as described above, together with the new policy governing the operation of this unit, should increase the efficiency of our nail picking operation by at least fifty percent (50%). At the same time the appearance of this equipment will be a credit to our equipment operation. We are attaching pictures of the new unit together with a picture of the old unit for comparison in appearance.

RWT:vp

R.W. Townsley

COMMISSION
FRED A. WEMPLE, CHAIRMAN
A. F. MITCHELL
ROBT. J. POTTS

STATE HIGHWAY ENGINEER
D. C. GREER

TEXAS HIGHWAY DEPARTMENT
Lubbock, Texas
April 14, 1950

FILE NO.

Subject: Report on Mineral Spirits

To: File D-4

Refer: 16-50
April 10, 1950

Gentlemen:

A comparative report on our experience with the two products, Mineral Spirits and Distilled Turpentine, is itemized as follows:

1. Quality as a thinner is approximately equal.
2. Mineral Spirits do not have disagreeable fumes as is characteristic of Distilled Turpentine. (It is my understanding that the fumes from turpentine are over a period of time injurious to the health of the workmen.)
3. Mineral Spirits are less rapid in drying than is Distilled Turpentine. However, that may be considered no disadvantage in this comparatively dryer climate of the South Plains.
4. There appears to be no difference in the quality and durability of the finished coat of paint.

Based on the above opinions and results, our paint shop men express a definite preference for the Mineral Spirits.

Yours very truly,

S. C. McCarty

S. C. McCarty
District Engineer

CPM: lbt

COMMISSION
FRED A. WEMPLE, CHAIRMAN
A. F. MITCHELL
ROBT. J. POTTS

TEXAS HIGHWAY DEPARTMENT

STATE HIGHWAY ENGINEER
D. C. GREER

Amarillo, Texas
April 14,1950

FILE NO.

D-4

Mr. D. C. Greer, State Highway Engineer
Texas Highway Department
Austin 26, Texas

Attention: Mr. John Nations

Dear Sir:

Reference is made to your Circular Letter No. 16-50, under date of April 10, relative to the substitution of mineral spirits for distilled turpentine, in painting signs, equipment, buildings, etc.

Please be advised that our experience with the use of mineral spirits has been terrible, in as much as signs, equipment, etc., will not dry when mineral spirits are used.

District No. 4 therefore, votes thumbs down on the use of mineral spirits.

Very truly yours,

James G Lott

James G. Lott
District Engineer

JGL:eb

COMMISSION
FRED A. WEMPLE, CHAIRMAN
A. F. MITCHELL
ROBT. J. POTTS

TEXAS HIGHWAY DEPARTMENT

STATE HIGHWAY ENGINEER
D. C. GREER

Lubbock, Texas
May 10, 1950

FILE NO.

Mr. John B. Nations, Director
Equipment and Procurement
Texas Highway Department
Austin, Texas

Dear Sir:

In reviewing our equipment list, it seems the numbering is getting more complicated every month. Has anyone ever tried to devise a new system that will operate more smoothly in the field and obviate confusion in identifications?

In District 5 we have 141-A and 141-D, 145-A and 145-D, 3669-C through 3672-C coupled with 3669-D through 3672-D, 9120-A and 9120-B. Number 9120-A is an asphalt booster tank, and 9120-B is a large asphalt storage tank. We have asphalt storage tanks in the 91-hundred series and then some in the 11-thousand series.

As it looks from here, the present numbering system weaves aimlessly back and forth amidst the 25 districts and Austin office, using the same digits and suffixing alphabetical letters for differentiation. There is a deft avoidance of duplication, but the similarities are so close to be a bane to the issuer of time reports and to the proofreader.

Two or three years ago I worked out a system that would establish certain numerals for each district. These same numerals could be maintained for years for that particular district with the addition of letter-suffixes. For instance, passenger cars in District 5 would be 328 through 359, and, counting the possible letter-suffixes for replacements, the same numbering system would remain good for 50 years. This is based on 2-year life of car, 25 usable letters in the alphabet, and the probability that the district would never have over 32 cars at one time.

Exhibit A (attached) would be the base. This could be arranged in any desirable manner of classification; the brackets increased or decreased; and the classifications could be specialized more closely, as one for pickups, one for station wagons, one for 1 1/2 ton trucks, one for 2-ton trucks; one for gasoline motor graders, and another for diesel motor graders.

Any and all kinds of possibilities exist for such groupings.

The bracket of 10,000 through 10,099 should be omitted, as these are the hardest figures to put down correctly that may be imagined.

Exhibit B (attached) shows how the system would operate. It is not complicated at all, with the exception of transfers, and I can think of no bar toward changing the equipment number when it is transferred as D-4 has made such changes in the past in the case of conversion.

It would be an easy task for the office of Equipment and Procurement to arrange a system of records, showing the numbers reserved for each district, the numbers assigned, and the numbers unassigned for each classification.

I wish you would look the system over closely. I believe the principle is practicable. Sooner or later our numbering system will have to be revamped. The ideal is to have numbers less than 1,000. I figured on this, using a letter prefix for the districts: A for District 1, B for District 2, etc. I was never able to round this out to cover all probabilities. See Exhibit C (attached).

Very truly yours,

J. A. Neill, Chief
District Accountant

JAN:bac

Exhibit A

SUGGESTED EQUIPMENT NUMBERING SYSTEM

Equipment Number	Description	Location	Reserved Quantity for each District
1-199	Passenger Cars	Austin Office	200
200-999	Passenger Cars	25 Districts	32
1000-1499	Pickups, Sta. Wagons, etc.	25 Districts	20
1500-1999	Trucks, Miscellaneous	25 Districts	20
2000-3999	Trucks, Dump	25 Districts	80
4000-4999	Graders	25 Districts	40
5000-5999	Small Tractors, Mowers, etc.	25 Districts	40
6000-6499	Tractors, Large	25 Districts	20
6500-6999	Booster Tanks	25 Districts	20
7000-7999	Heaters & Distributors	25 Districts	40
8000-8999	Motor Graders	25 Districts	40
9000-9399	Storage Tanks	25 Districts	16
9400-9699	Mixers	25 Districts	12
9700-9899	Air Compressor	25 Districts	8
9900-9999	Open		
10000-10099	Omit		
10100-10699	Pumps and Motors	25 Districts	28
10700-10899	Brooms	25 Districts	8
10900-10999	Open		
11000-11499	Trailers	25 Districts	20
11500-11999	Rollers	25 Districts	20
12000-12999	Miscellaneous	25 Districts	40

Exhibit B

Reservation and Assignment of Numbers to Districts

Examples:

District No.	Passenger Cars		Heaters & Distributors	
1	200-231		7000-7039	
2	232-263	32 to	7040-7079	40 to
3	264-295	each	7080-7119	each
4	296-327	District	7120-7159	District
5	328-359		7160-7199	
Etc.				

A specified quantity of each classification is reserved equally for each district in numerical order of the numbered districts.

Identities Retained in Replacements: When a vehicle is replaced, use the same numerals as the old but add next letter of the alphabet. Example: if 7160 is traded in or junked and a replacement purchased, the new number would be 7160-A. Each district would retain its identifying numbers.

Another Advantage: Locating Equipment: If Exhibit A is set up in the Manual, with a brief outline of the system of assignment and reservation of equipment numbers, the identity and location of any equipment may be determined by its number by any one.

Example of Location: Equipment No. 650 stops in District 5 for gasoline. Reference to Exhibit A shows this is a passenger car that begins with the 200 series.

$$\begin{array}{r} 650 \\ -\ 200 \\ \hline 450 \end{array} + 1 = 451 \div 32 = 14 + = 15$$

(District 15). (This car is from District 15).

Method Explained: Arrive at the numerical quantity of vehicles, inclusive of and preceding the specific number, in that particular bracket or classification, by subtracting the first equipment number in the bracket from the number in question and adding 1. Then divide the result by the quantity alloted each district. If the quotient has a plus, use the next whole number as the quotient, and this is the district location.

Another Example: Equipment No. 7180 Heaters and Distributors:

$$\begin{array}{r} 7180 \\ -\ 7000 \\ \hline 180 \end{array} + 1 = 181 \div 40 = 4 + = 5$$

(District 5).

If a piece of equipment is transferred from one district to another, the number could be changed to conform to that district's assigned bracket.

If gradual change in numbering system is found to be the only practicalbe means, use above numbering with suffix "X" for replacements until switchover is complete.

Example: If equipment No. 10957 Distributor is traded in or junked from District No. 5, the replacement machine would be numbered 7160-X, and so on until the new numbering system had been set up.

Exhibit C

ANOTHER SUGGESTED EQUIPMENT SYSTEM

Equipment Numbers	Description	Quantity Reserved for Each District
10-199	Austin Cars	
200-224	District Cars	25
225-249	Coupe Pickups & Trucks Pickups	25
250-274	Station Wagon, Jeeps, Recon., Ambulances, Carryalls	25
275-299	Trucks, Miscellaneous	25
300-349	$1\frac{1}{2}$ Ton Dump Trucks	50
350-399	2 Ton Dump Trucks	50
400-449	Graders	50
450-499	Small Tractors, Mowers	50
500-524	Tractors, Large	25
525-549	Booster Tanks	25
550-599	Motor Graders	50
600-624	Heaters	25
625-649	Distributors	25
650-699	Trailers	50
700-749	Rollers	50
750-799	Pumps & Motors	50
800-816	Asphalt Storage Tanks	17
817-824	Air Compressors	8
825-839	Mixers	15
840-859	Brooms	20
860-899	Miscellaneous	40

Use letter of alphabet preceding to designate district; Austin Office, no prefix.
Example: Motor Graders:

District No.	Equipment No.
1	A-550
2	B-550
3	C-550

ALL TYPES OF TRANSPORTATION...

WERE...

AND ARE...

...USED BY TRAVELERS

TRAFFIC SERVICES

FOREWORD

Our job is not done when the construction of a highway is completed and it is taken over for maintenance. We must live with the highways we build until they are removed from the Highway System, and the responsibility for their operation is definitely ours The traveling public not only expects but demands that traffic operate with a minimum of irritating delays and costly accidents.

It is an unfortunate condition that we cannot replace the major highways with designs of the expressway type with controlled access that incorporate such self-operating features as physical separation of opposing traffic flows, two or more lanes for each direction of traffic, separation of grades for cross traffic, and properly designed traffic interchanges. Since we cannot build into the highways all of these self-operating features, however, we must compensate for them to the greatest extent possible by the wise and judicious use of such traffic control devices as signs, signals, and markings. We must also apply corrective measures for locations that develop into sources of irritating delays and hazards to traffic. This is simply an application of the principal of making the best use of what we have.

The following series of articles are illustrations of what can be done toward the end of making better use of existing highways. They are proved, simple, and in most instances inexpensive measures that have been applied in an attempt to provide a safe and fluid flow of traffic.

NO DOUBT EACH DISTRICT HAS APPLIED SOME SIMPLE CORRECTIVE MEASURES TO TRAFFIC SORE SPOTS THAT HAVE PROVED EFFECTIVE, AND WE BELIEVE IT WOULD BE OF GREAT HELP TO ALL OF US IF THEY WERE PASSED ALONG THROUGH THE MEDIUM OF THE "INFORMATION EXCHANGE."

The Effect Of Speed Zoning On Traffic Speeds

On North Shepherd Drive "U.S. 75"

Just North Of The City Limits Of Houston

Several years ago and before this section of U. S. Highway 75 north of Houston was taken into the city limits of Houston, a section of this highway was posted for a speed limit of 30 miles per hour. Speed checks showed that whereas only 15 per cent of the motorists were exceeding a value of 42 miles per hour, as many as 95 per cent exceeded the posted 30 miles per hour value. On the basis of the speed checks, study of accidents, and roadside developments, a speed limit of 40 miles per hour was recommended to the Commission and approved by them.

The posting of the 40 miles per hour value caused some complaint for a while on the mistaken belief that to do so would create a more hazardous condition than existed with the 30 miles per hour limit. This point of view ignored the fact that practically no one was obeying the 30 miles per hour value at the time.

The complaints soon ceased, and approximately one year later speed checks made at the same locations showed that 15 per cent of the motorists were exceeding 41 miles per hour.

The most significant change in speed after raising the limit from 30 miles per hour to 40 miles per hour was in the high speed group. WHEREAS MOTORISTS WERE FOUND TO TRAVEL AT SPEEDS AS HIGH AS 60 MILES PER HOUR WITH THE 30 MILES PER HOUR LIMIT, NO ONE WAS FOUND TO EXCEED 50 MILES PER HOUR WITH THE 40 MILES PER HOUR SPEED VALUES.

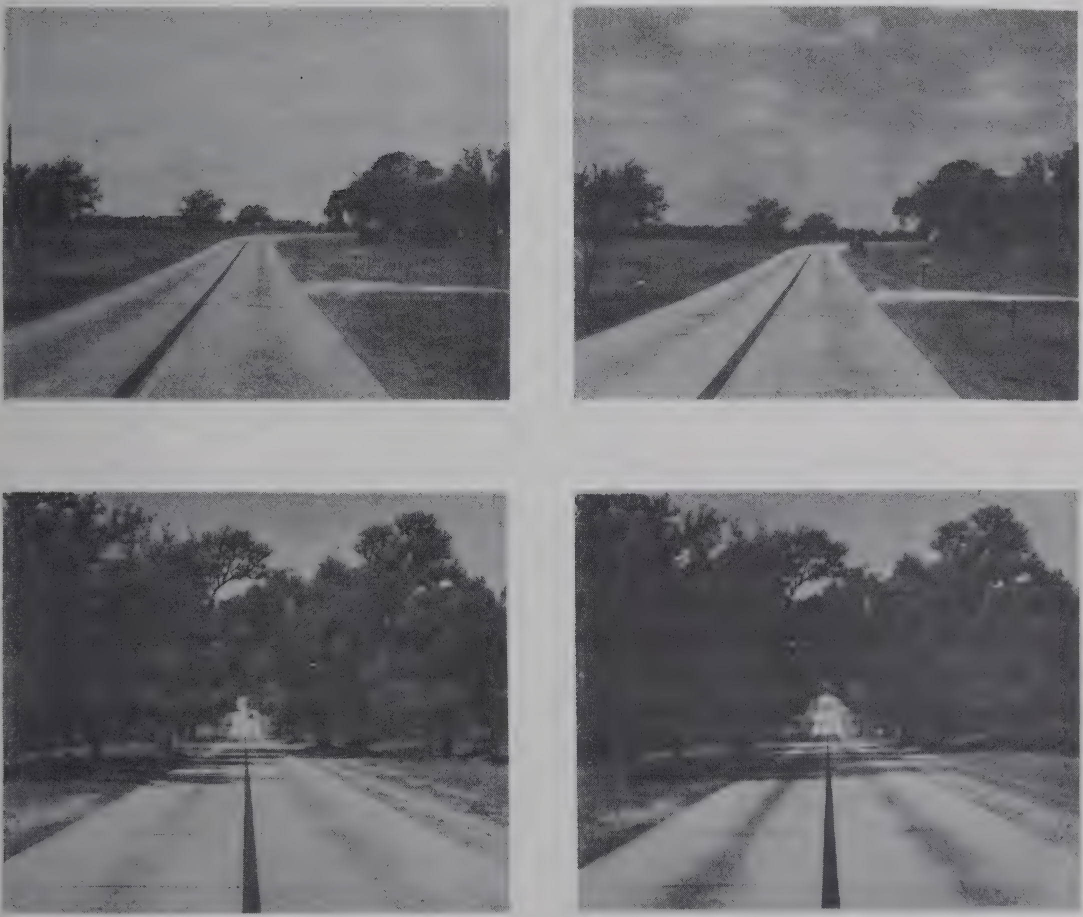
There are several explanations of the fact that a raised speed limit causes the extremely fast driver to reduce his speed. A fast driver who enters an area with a limit which is "too slow for conditions" often decides he might as well be arrested for going 60 miles per hour as to be arrested for going 40 miles per hour in a thirty mile per hour zone. Where the speed limit corresponds more nearly to the speed that drivers feel is reasonable, a measure of self-enforcement is secured. Also, zoning based on speed measurements results in a more orderly movement of traffic with fewer passings. Since the speed differentials are reduced, increased safety results.

Improving Sight Distances By Selective Pruning

The following pictures show a very desirable activity, safety and operationwise, which should be promoted statewide.

These pictures illustrate very clearly how judicious pruning of roadside plantings or natural growth should reduce the possibility of accidents as well as improve the roadside appearance.

Where a large gain in sight distance can be secured by selective pruning off of the highway right-of-way, considerable effort to obtain the permission of the landowner is warranted.



Before After

Cumulative Total Of Center Stripe Work Performed By Districts As Of June 1, 1950

Previous to the 1949-1950 fiscal year, only a small amount of information was available regarding the average cost per mile and the rate of application for Paint Pavement Markings and the average cost per mile for Asphalt Pavement Markings on the Texas Highway System. As the necessity for these markings will no doubt

DISTRICT NUMBER	PAINT STRIPE	ASPHALT STRIPE	TOTAL COST	GALLONS OF PAINT USED PER MILE	PAINT STRIPE TOTAL MILEAGE
1	3, 230. 59	5, 201. 25	8, 431. 84	40, 26	30. 80
2	13, 208. 54	19, 146. 06	32, 354. 60	19. 06	1 19. 89
3	6, 393. 36	6, 415. 59	12, 808. 95	18. 76	50. 64
4	8, 983. 06	18, 764. 11	27, 747. 17	15 . 60	91. 10
5	6, 923. 44	13, 310. 07	20, 233. 51	27. 66	47. 97
6	7, 186. 58	27, 156. 30	34, 342. 88	18. 19	38. 65
7	5, 411. 00	4, 901. 00	10, 312. 00	17. 43	56. 95
8	9, 671. 14	16, 950. 80	26, 621. 94	15. 10	74. 36
9	7, 804. 37	4, 553. 28	12, 357. 65	15. 00	62. 30
10	9, 469. 57	8, 047. 91	17, 517. 48	18. 15	127. 56
11	2, 897. 46	5, 306. 12	8, 203. 58	17. 10	25. 72
12	2, 221. 53	11, 003. 47	13, 225. 00	15. 03	31. 63
13	9, 067. 36	4, 667. 78	13, 735. 14	20. 54	66. 07
14	15, 657. 57	2, 755 54	18, 413. 11	16. 70	163. 71
15	4, 322. 68	5, 382. 65	9, 705. 33	14. 31	48. 84
16	7, 999. 06	8, 256. 04	16, 255. 10	23. 60	47. 66
17	4, 475. 05	1, 775. 86	6, 250. 91	18. 00	37. 33
18	2, 057. 77	26, 777. 84	28, 835. 61	10. 63	33. 87
19	13, 027. 81	2, 465. 96	15, 493. 77	16. 94	135. 80
20	12, 112. 86	16, 532. 85	28, 645. 71	13. 44	134 60
21	2, 608. 29	18, 073 67	20, 681. 96	19. 80	22. 39
22	8, 324. 49		8, 324. 49	19. 66	68. 16
23	1. 50	8, 113. 50	8, 115. 00		
24	1, 861. 80		1, 861. 80	22. 50	13. 70
25	4, 624 . 53	13, 452. 85	18, 077. 38	17. 20	47. 90
	169, 541. 41	249, 010. 50	418, 551. 91		1, 577. 60

No work was performed in District 6 and 16 for the month of May.

Cumulative Total Of Center Stripe Work Performed

By Districts As Of June 1, 1950

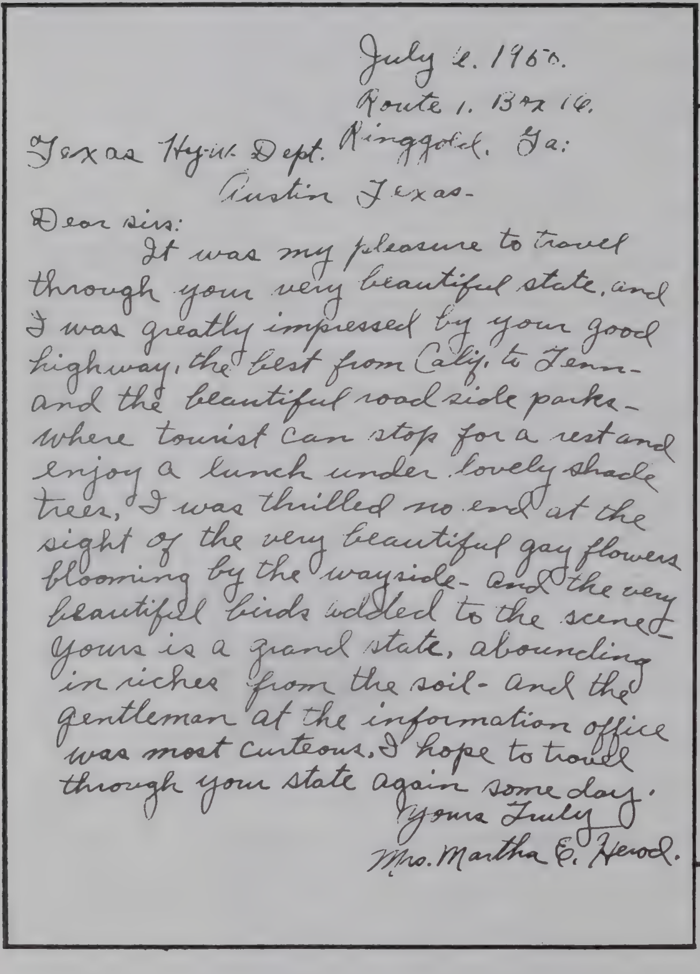
keep increasing, cost and rate of application figures are very desirable. With this in mind, data have been collected from various Districts throughout the State through the month of April, the results of which are shown below. It is our thought that this information will be of interest to the districts.

ASPHALT STRIPE TOTAL MILEAGE	TOTAL MILEAGE	PAINT STRIPE AVERAGE COST PER MILE	ASPHALT STRIPE AVERAGE COST PER MILE
154.80	185.60	104.89	33.60
326.55	446.44	110.17	58.63
142.90	193.54	125.26	44.90
400.50	491.60	98.61	46.91
326.50	374.47	144.32	41.76
290.16	328.81	185.94	93.59
143.22	200.17	95.00	34.22
330.00	404.36	130.06	51.37
114.90	177.20	125.27	39.63
231.14	358.70	74.23	34.82
102.11	127.83	112.65	51.96
181.31	212.94	100.28	60.69
77.45	143.52	137.23	60.27
70.66	234.37	95.64	38.99
75.06	123.90	88.51	71.70
111.09	158.75	167.82	74.32
35.00	72.33	119.89	50.74
523.79	557.66	60.75	51.12
51.60	187.40	95.93	47.79
297.50	432.10	89.99	55.57
565.91	588.30	116.50	31.94
	68.16	122.14	
199.88	199.88		40.59
	13.70	135.90	
363.95	411.85	96.55	36.96
5, 115.98	6, 693.58	107.47	48.67

Districts 8, 10, 12, 15, and 23 did not submit a report for May.

"Comments From the Traveling Public"

OVER THE HIGHWAYS



July 2. 1950.
Route 1. Box 16.
Ringgold. Ga:

Texas Hyw. Dept.
Austin Texas-

Dear sirs:

It was my pleasure to travel through your very beautiful state, and I was greatly impressed by your good highway, the best from Calif. to Tenn- and the beautiful road side parks- where tourist can stop for a rest and enjoy a lunch under lovely shade trees, I was thrilled no end at the sight of the very beautiful gay flowers blooming by the wayside- and the very beautiful birds added to the scene- Yours is a grand state, abounding in riches from the soil- and the gentleman at the information office was most curteous, I hope to travel through your state again some day.

Yours Truly
Mrs. Martha E. Herod.

John C. Fain
Rule Building
Amarillo, Texas

November 28, 1948

Texas State Highway Department
403 Bowie
Amarillo, Texas

Gentlemen:

It is not known to whom this letter should be addressed but merely hoped that it will find its way to the attention of some of those persons responsible for the almost heroic assistance given to travellers in distress on the highways in the snow last night, Saturday November 27th.

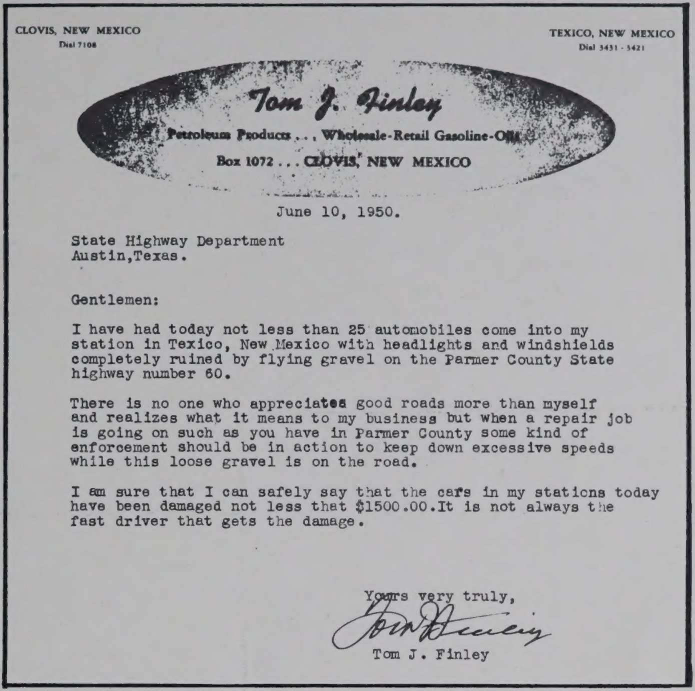
Our case was that of hundreds of others except that we may have been more fortunate in the inconvenience suffered. Mrs. Fain and I were in the lead car headed west and trapped in the road block several miles this side of Conway, Texas, the column going east consisting principally of trucks and a bus, being led by the highway patrol until becoming stalled.

The situation seemed near hopeless until one of your large yellow trucks with snow blade and revolving blue light came to the rescue. The individuals manning this equipment are the ones I wish to especially commend. They had no fear of the storm and showed no hesitancy in combatting the difficulties unprotected and on foot as much as necessary. They were polite, speedy and efficient and did not make one false move. If possible, we should like for them to know of our appreciation and we can be identified as driving a '41 Lincoln that they first pushed out of a drift with their blade, then pulled as we had gotten cross-wise between a bus and truck, and hooked onto for a third time for the lift that headed us for Amarillo.

We hope there will be no repetition of this bad weather, however, if the worst happens there will be great hope and satisfaction in knowing that someone from the Highway Department will be coming along.

Yours very truly,

/s/ John C. Fain



CLOVIS, NEW MEXICO
Dial 7108

TEXICO, NEW MEXICO
Dial 3431 - 3421

Tom J. Finley
Petroleum Products . . . Wholesale-Retail Gasoline-Oils
Box 1072 . . . CLOVIS, NEW MEXICO

June 10, 1950.

State Highway Department
Austin,Texas.

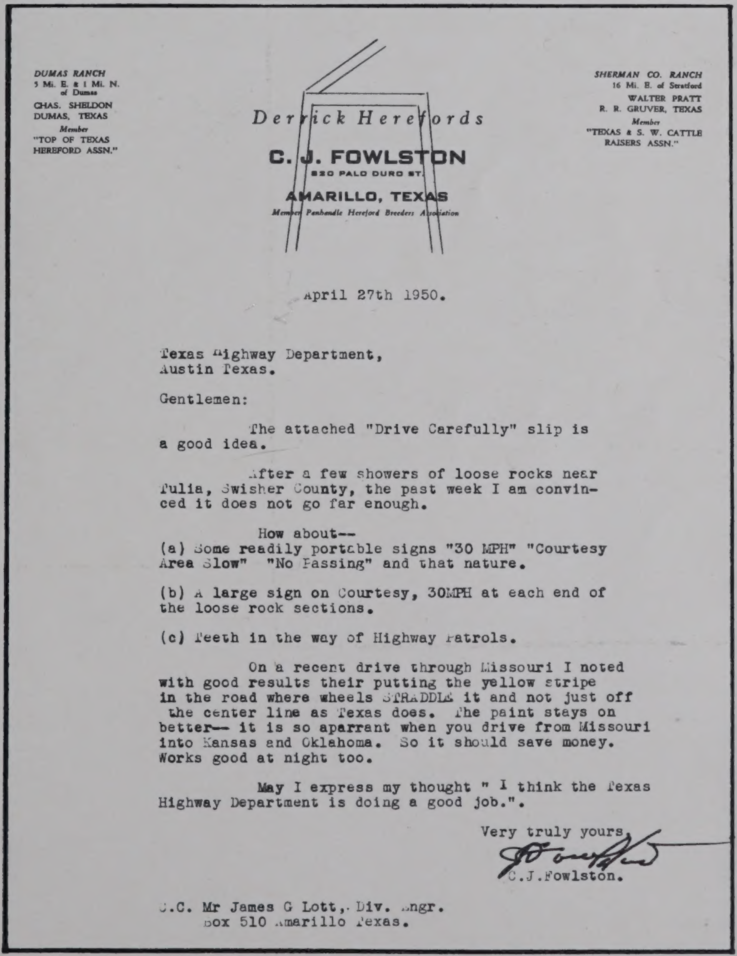
Gentlemen:

I have had today not less than 25 automobiles come into my station in Texico, New Mexico with headlights and windshields completely ruined by flying gravel on the Parmer County State highway number 60.

There is no one who appreciates good roads more than myself and realizes what it means to my business but when a repair job is going on such as you have in Parmer County some kind of enforcement should be in action to keep down excessive speeds while this loose gravel is on the road.

I am sure that I can safely say that the cars in my stations today have been damaged not less that $1500.00.It is not always the fast driver that gets the damage.

Yours very truly,
Tom Finley
Tom J. Finley



DUMAS RANCH
5 Mi. E. & 1 Mi. N.
of Dumas
CHAS. SHELDON
DUMAS, TEXAS
Member
"TOP OF TEXAS
HEREFORD ASSN."

Derrick Herefords
C. J. FOWLSTON
820 PALO DURO ST.
AMARILLO, TEXAS
Member Panhandle Hereford Breeders Association

SHERMAN CO. RANCH
16 Mi. E. of Stratford
WALTER PRATT
R. R. GRUVER, TEXAS
Member
"TEXAS & S. W. CATTLE
RAISERS ASSN."

April 27th 1950.

Texas Highway Department,
Austin Texas.

Gentlemen:

The attached "Drive Carefully" slip is a good idea.

After a few showers of loose rocks near Tulia, Swisher County, the past week I am convinced it does not go far enough.

How about--
(a) Some readily portable signs "30 MPH" "Courtesy Area Slow" "No Passing" and that nature.

(b) A large sign on Courtesy, 30MPH at each end of the loose rock sections.

(c) Teeth in the way of Highway Patrols.

On a recent drive through Missouri I noted with good results their putting the yellow stripe in the road where wheels STRADDLE it and not just off the center line as Texas does. The paint stays on better-- it is so aparrant when you drive from Missouri into Kansas and Oklahoma. So it should save money. Works good at night too.

May I express my thought " I think the Texas Highway Department is doing a good job.".

Very truly yours,
C.J. Fowlston
C.J.Fowlston.

C.C. Mr James G Lott,. Div. Engr.
Box 510 Amarillo Texas.